REMARKS/ARGUMENTS

Claims 1-6 and 14-16 remain in the case.

Claims 7-11 have been cancelled.

Applicant wishes to thank the Examiner for the courteous and helpful telephone interview on 1 October 2003 during which the merits of the pending claims were discussed. The Examiner indicated that during the interview claims 1 and 14 would be allowable if amended so that it was clear that the three electrode ion mirror abutted the inner surface of the flight tube.

Claim 1 has been rejected under 35 U.S.C. 103(a) being unpatentable over the Zhang et al. ("A Novel Non-Linear Ion Mirror with Only Three Elements" European Journal of Mass Spectrometery, February 22, 2001) and further in view of U.S. Patent of Hanson 6,013,913.

Applicant's mass spectrometer as shown in FIGS. 1 and 4 and described on page 6 of the specification, 2nd full paragraph, includes a three electrode ion mirror against or abutting the inner surface of a flight tube for retarding and reflecting ions from an ion source. This enables each of the electrodes in the ion mirror to be easily aligned and mounted with permanent high precision and accuracy relative to the flight tube and other elements of the mass spectrometer.

Claim 1 has been amended to make the claim more definite with respect to the feature of the invention in which the ion mirror abuts the inner surface of the flight tube.

The applied reference of Zhang et al. does not disclose an ion mirror abutting the inner surface of a flight tube or suggest such a combination.

Hanson shows a reflectron within a flight tube. However, the reflectron does not abut the inner surface of the flight tube. As illustrated in FIG. 10 of Hanson, the reflectron is clearly spaced from the inner surface of the flight tube. There is no mention in the specification of Hanson that the reflectron could abut the inner surface of the flight tube. Accordingly, Hanson does not suggest employing the ion mirror of Zhang et al. in an abutting relationship with the inner surface of the flight tube. Therefore, claim 1 is believed to be patentable over Zhang et al. and Hanson taken alone or in combination.

Claims 2-6 are dependent from claim 1 and are believed to be patentable along with their parent claim.

Applicant's mass spectrometer as recited in claim 14 includes a flight tube and a three electrode ion mirror abutting and fixed to the inner surface of a flight tube for retarding and reflecting ions from the ion source. This embodiment of the invention is also described on page 6 of applicant's specification. This enables each of the electrodes in the ion mirror to be easily aligned and mounted with permanent high precision and accuracy relative to the flight tube and other elements of the mass spectrometer.

Since the reflectron of hanson is spaced from the inner surface of the flight tube and, therefore, not abutting and fixed to the inner surface of the flight tube as recited in claim 14, claim 14 is believed to be patentable over Zhang et al. and Hanson for the same reasons that were given in support of the patentability of claim 1.

Claims 15 and 16 are dependent from claim 14 and are believed to be patentable along with their parent claim.

In view of the cancellation of claim 6-11, the amendments to claims 1-3 and the above remarks, this application is believed to be in condition for a Notice of Allowance. Such further and favorable action is respectfully requested.

Respectfully submitted,
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Date: 7 October 2003

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